REMARKS

Claims 47-62 are pending in the present application. Claims 47-62 have been rejected under § 103 as being unpatentable over Koinuma 4,451,802 (Koinuma) in view of King 6,300,827 (King), Engbretson 5,311,150 (Engbretson), Dudley et al. 5,144,133 (Dudley) and Lu et al. 6,009,023 (Lu).

New claims 63-72 have been added. Claims 47-56 have been canceled to minimize extra claim fees. Applicants assert that new claims 63-72 are allowable over the cited prior art. Although Applicants still assert that the canceled claims are patentable over the cited prior art, but have been canceled to facilitate expeditious prosecution.

As mentioned above, claims 57-62 have been rejected under § 103 as being unpatentable over Koinuma in view of King, Engbretson, Dudley and Lu. The Examiner has taken the position that it would have been obvious to combine the teachings of these references, and that such a combination makes the claims unpatentable. In the Office Action, it is alleged that it would be obvious to one of ordinary skill in the art to replace the load of Koinuma with a wireless transmission/reception system taught by King. The Office Action also alleges that it would have been obvious to substitute the FET structure of Engbretson for the bipolar elements of Koinuma. The Office Action also alleges that it would have been obvious to replace the amplifier of Koinuma with a CMOS based unit. Finally, the Office Action alleges that it would have been obvious to make the oxide of the output stage thicker than the lower voltage input stage.

Claim 57 recites a method of providing a CMOS RF power amplifier for a wireless transmission system including "providing an input stage including one or more devices having a first gate oxide thickness," "providing an output stage including a plurality of switching devices having a second gate oxide thickness," and "selecting the thickness of the first and second gate

oxides such that the second gate oxide thickness is greater than the first gate oxide thickness, wherein the first gate oxide thickness is selected based on desired breakdown voltage levels of devices in the input stage and the second gate oxide thickness is selected based on desired breakdown voltage levels of devices in the output stage."

As asserted previously, if one skilled in the art were to attempt to design the power amplifier of Koinuma to be used in the wireless transmission/reception system of King, using CMOS technology, as in Dudley, applicants assert that it would not be obvious to combine such a design with the teachings of Lu. Designing an RF power amplifier using CMOS technology presents large challenges. For example, it is very difficult to meet performance goals when designing an RF power amplifier in CMOS. In typical RF designs, it is usually desirable to use the fastest and most efficient devices possible on an integrated circuit. With respect to the thickness of gate oxide devices, thinner gate oxide devices will typically perform better than thicker gate oxide devices. This would tend to make a designer use the smallest gate oxide thickness available (since thin gate oxide devices are typically faster and more efficient). While trying to increase performance and efficiency is such an RF design, it would be counter intuitive to also use larger gate oxide thicknesses in an RF power amplifier, which would tend to lower performance and efficiency. There appears to be no teaching in the cited references to select gate oxide thicknesses based on desired breakdown voltage levels of devices in an input stage and in an output stage of a power amplifier. Therefore, Applicants believe that it would not be obvious for one skilled in the art to combine the teachings of Lu with the other references, since using thicker gate oxide devices in the combination would appear to decrease the performance of the RF power amplifier.

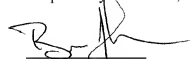
New independent claim 63 recites a method of providing a complementary metal oxide semiconductor (CMOS) RF power amplifier for a wireless transmission system comprising "using devices with a first gate oxide thickness to form RF power amplifier input stage circuitry," "identifying a breakdown voltage level for devices used in the input stage circuitry," "selecting the first gate oxide thickness for the devices used in the input stage circuitry based on the identified breakdown voltage level for devices used in the input stage circuitry," "using devices with a second gate oxide thickness to form RF power amplifier output stage circuitry," "identifying a breakdown voltage level for devices used in the output stage circuitry," and "selecting the second gate oxide thickness for the devices used in the output stage circuitry based on the identified breakdown voltage level for devices used in the output stage circuitry, wherein the first gate oxide thickness is less than the second gate oxide thickness."

New independent claim 68 recites a method of providing a cellular telephone apparatus comprising "providing a transceiver for transmitting and receiving signals," "forming an RF power amplifier using a complementary metal oxide semiconductor (CMOS) device," "coupling the RF power amplifier to the transceiver," "using devices with a first gate oxide thickness to form input stage circuitry for the RF power amplifier," "using devices with a second gate oxide thickness to form output stage circuitry for the RF power amplifier," "selecting the first gate oxide thickness based on identified breakdown voltage levels of devices in the input stage circuitry," "selecting the second gate oxide thickness based on identified breakdown voltage levels of devices in the output stage circuitry, wherein the first gate oxide thickness is less than the second gate oxide thickness," and "coupling an antenna to the RF power amplifier and the transceiver for transmitting and receiving signals."

Applicants assert that new claims 63-72 are patentable over the cited prior art. For example, the cited references, alone or in combination, do not appear to teach selecting gate oxide thicknesses based on identified breakdown voltage levels of devices in input stage circuitry and in output stage circuitry of an RF power amplifier.

It is respectfully submitted that all claims are patentable over the prior art. It is further more respectfully submitted that all other matters have been addressed and remedied and that the application is in form for allowance. Should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Bruce A. Johnson, Applicants' Attorney at 512-301-9900 so that such issues may be resolved as expeditiously as possible. Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 to deposit account number 50-3864 (Johnson & Associates).

Respectfully Submitted,



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Date

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